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ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/620,988	EVERETT, RON	
	Examiner	Art Unit	
	Dennis Myint	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-96* is/are pending in the application.

4a) Of the above claim(s) *63-81* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-24,27-28, 31-34, 36, 38-39, 40,42,44,47-62, 82-90, and 92-96* is/are rejected.

7)☒ Claim(s) *25,26,29,30,35,37,41,43,45,46 and 91* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *07/16/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-96 are pending in this office action.

Election/Restrictions

2. Restriction to the one of the following inventions is required under U.S.C. 121:

I. Claims 1-62 and 82-96, drawn to object-oriented database structure, classified in class 707, sub class 103.

II. Claims 63-81, drawn to memory storage, accessing and control, classified in class 711, subclass 100.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention I has separate utility such as follow:

Group I teaches an object-oriented data structure and its maintenance in memory while Group II teaches means (e.g., a processor, a controller, etc.) or steps for governing memory in a computer or digital data processing system or the passage (e.g., reading, writing) of data.

Because these inventions are distinct from the reasons given above and have required a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

During a telephone interview with Dennis M. Carleton on 25 January 2006, a provisional election was made without traverse to prosecute the invention of Group I (claims1-62 and 82-96). Affirmation of this election must be made by the applicant in replying to this office action.

Claims 63-81 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is not longer an inventor of at least one claiming remaining in the application. Any amendment of inventorship must be must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i). See MPEP § 806.05(d).

Claim objections

3. Claims 27-30 are objected to because of the following informalities.

Referring to claim 27-30, the claims recite that "The method of claim**s** 23 ..." and so on in stead "The method of claim 23....." and so on. The applicant is required to make appropriate correction.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 24-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 24 recites the limitation " The method of claim 23, wherein said Boolean operations further comprise: ". There is insufficient antecedent basis for this limitation in the claim because claim 23 discloses a system, not a method.

Claims 25-30 are rejected on the same basis.

5. Claims 38-39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In claims 38 and 39, it is recited that searching is done by employing comparator connected arrays of shift registers attached as a port to a memory bus, logic circuits, and a concatenated series of shift registers which determine search results. However,

the specification of the claimed invention lacks enabling disclosure on implementing and employing those comparator connected arrays of shift registers, logic circuits, and a concatenated series of shift registers. The limitation is not described in the specification and one of ordinary skill in the art would not be enabled to make/use the claimed invention.

Any claim not specifically addressed is rejected by virtue of dependency on claims 24-30 and 38-39.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-4, 7, 9-16, 53, 85-87, 89, 92 are rejected under 35 U.S.C. 102(e) as being anticipated by White et al. (U.S. Patent Number 6609132).

As per claim 1, White et al. is directed to a data management system in a computing environment comprising:

a) a data instance centric architecture (White et al., Column 5 Line 31-32);

b) where each data instance is encapsulated in a common fundamental data structure (White et al., Column 6 Line 66 through Column 7 Line 11); and

c) where said common fundamental data structure also encapsulates references to associated separately encapsulated data instances (White et al., Column 6 Line 66 through Column 7 Line 11, Column 7 Line 18-38, and Column 6 Line 23-43).

As per claim 2, White et al. is directed to the data management system of claim 1 wherein the said data-instance centric architecture and the said common fundamental data structure have structural symmetry (White et al., Column 5 Line 48-63 and Column 7 Line 18-38).

As per claim 3, White et al. is directed to the data management system of claim 1 wherein a first data instance is encapsulated with references to associated data instances and each of said associated data instances are separately encapsulated with a reference to said first encapsulated data instance (White et al., Column 6 Line 22-43 and Column 7 Line 18-38).

As per claim 4, White et al. is directed to the data management system of claim 3, wherein said data-instance centric architecture and the said fundamental data structure and the said encapsulated data instances and references have structural and relationship symmetry (White et al. Column 5 Line 48-63 and Column 7 Line 18-38).

As per claim 7, White et al. is directed to the data management system of claim 1, wherein said encapsulated references are in at least one dimensions; and each of said at least one dimensions corresponds to a type of association (White et al., Column 7 Line 5-11).

As per claim 9, White et al. is directed to the data management system of claim 1, wherein the common fundamental data structure is application independent and is generally the same for all of said data instances (White et al., Column 7 Line 61 through Column 8 Line 3).

Claims 10-16 and 53 are rejected on the same basis as claim 9.

Claims 85-87 are rejected on the same basis as claim 1.

As per claim 89, White et al. is directed to the data management system of claim 85 wherein said references to associated items are arranged in sets defining the type of association between said item and each of said other items referenced in said set (White et al., Figure 3 and Column 7 Line 44-61 "Relation Type Table Entry").

As per claim 92, White et al. is directed to the data management system of claim 85 wherein said items may act as containers for one more member items (White et al., Column 6 Line 66 through Column 7 Line 11, Column 7 Line18-38, and Column 6 Line 23-43).

7. Claims 82-84 are rejected under 35 U.S.C. 102(e) as being anticipated by Aldridge et al. (U.S. Patent Number 6711582).

As per claim 82, Aldridge et al. is directed to a method to convert a non-data instance centric database to a data instance centric database comprising:

creating data instances in said data instance centric database representing elements of said non-data-instance centric database schema and data elements of said non-data-instance centric database (Aldridge et al., Column 5 Line 4-29); and

create associations amongst the said data instances in said data centric database representing the relationships between said data elements and said schema elements of the non-data-instance centric database (Aldridge et al., Column 5 Line 42 through Column 10 Line 41).

As per claim 83, Aldridge et al. is directed to the method of claim 82 wherein said converting is through a software agent ("Schema Mapping Module" 108, Aldridge et al., Figure 1 and Column 5 Line 4-12), which is a data instance in said data instance centric database.

As per claim 84, Aldridge et al. is directed to the method of claim 82 wherein said non-data instance centric database includes a flat file ("relational tables", Aldridge et al., Column 9 Line 10-15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 5, 6, 8, 18, 19-24, 31-34, 36, 47-48, 50-52, 54-55, 58-60, 62, 88, 90, and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view of Kroenke et al. (U.S. Patent Number 5809297).

Referring to claim 5, White et al. teaches the data management system of claim 1, wherein a first data instance is encapsulated with references to associated data instances and each of said associated data instances are separately encapsulated with a reference to said first encapsulated data instance; wherein each of said encapsulated references is a logical index which uniquely identifies each of said associated encapsulated data instances and also encodes the location ("pointers or keys") of each of said associated encapsulated data instances (White et al., "pointers or keys", Column 7 Line 5-11). However, White et al. does not explicitly recite that said logical index ("pointers or keys") is `m` dimensional, and has `n` bits per dimension.

However, Kroenke et al. teaches an object data model for semantic relationships wherein such logical indexes (attributes) "m" dimensional (Kroenke et al., Figure 2 and Column 6 Line 26-65) and has "n" bits per dimension (Kroenke et al., "length", Column 14 Line 4-17).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the details for creating attributes for a semantic object as taught by Kroenke et al. with the system and method taught by White et al. as applied to claim 1 above so that the combined system would comprise logical indexes which are "m" dimensional and has "n" bits per dimension. One would have been motivated to do so in order to obtain "a system that allows a user to create a relational

database schema in a way that does not require the user to be familiar with the underlying database technology or rules for defining a database", thereby enabling the user "to define the data to be stored in a way that mirrors the user's view of the data" (Kroenke et al., Column 2 Line 9-16).

Referring to claim 6, the system and method of White et al. in view of Kroenke et al. as discussed above with regard to claim 5 discloses the system as claimed. White et al. in view of Kroenke et al. teaches the data management system of claim 5 wherein said data instance centric architecture and said fundamental data structure; and the said encapsulated data instances and references have structural, relationship, value and containment symmetry ("Type Table Entry", White et al. Column 7 Line 8-10) (White et al., Column 5 Line 48 through Column 6 Line 21 and Column 7 Line 18-38).

Referring to claim 8, the system and method of White et al. in view of Kroenke et al. as discussed above with regard to claim 5 discloses the system as claimed. White et al. in view of Kroenke et al. teaches the data management system of claim 7, wherein each of said at least one dimensions has a plurality of said encapsulated references (White et al. Column 7 Line 5-11, Column 7 Line 45-52 and Kroenke et al. Column 6 Line 26-65).

Referring to claim 18, the system and method of White et al. in view of Kroenke et al. as discussed above with regard to claim 5 discloses the system as claimed. White et al. in view of Kroenke et al. teaches the data management system of claim 1, wherein said encapsulated references of at least one of said encapsulated data instances are unique (Kroenke et al., Figure 2, Column 6 Line 26-65, and Column 14 Line 4-17) and

said encapsulated references of at least two of said encapsulated data instances are generally identical (Kroenke et al., Figure 2, Column 6 Line 26-65, and Column 14 Line 4-17).

As per claim 19, the system and method of White et al. in view of Kroenke et al. as discussed above with regard to claim 5 discloses the system as claimed. White et al. in view of Kroenke et al. teaches the data management system of claim 1, wherein said data instance centric architecture includes plurality of pre-existing encapsulated data instances, and said plurality of pre-existing encapsulated data instances have established associations, and at least one new encapsulated data instance is associated with at least one of said pre-existing encapsulated data instances (White et al., Column 5 Line 3-32). White et al. in view of Kroenke et al. teaches an object database model (White et al., Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (White et al., Column 5 Line 5-10). Being an object database model, said objects encapsulate semantic attributes (semantic relations between/among the objects) along with other attributes. Said objects can be created or destroyed repeatedly. Therefore, said objects (encapsulated data instances) can pre-exist and more such objects can be created at will, establishing relationships between/among those pre-existing and new objects.

Claim 20 is rejected on the same basis as claim 19. White et al. in view of Kroenke et al. teaches an object database model (White et al., Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of

the relationships between them (White et al., Column 5 Line 5-10). Being an object database model, said objects can be removed/dissociated from any other objects (pre-existing or otherwise).

Claim 21 is rejected on the same basis as claim 19. White et al. in view of Kroenke et al. teaches an object database model (White et al., Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (White et al., Column 5 Line 5-10). Being an object database model, attributes of the objects can be arbitrarily changed. In other words, new associations between objects (pre-existing or otherwise) can be added.

Claim 22 is rejected on the same basis as claim 19. White et al. in view of Kroenke et al. teaches an object database model (White et al., Column 5 Line 5), which comprises one or more objects (items) and relations that characterize the semantics of the relationships between them (White et al., Column 5 Line 5-10). Being an object database model, attributes of the objects can be arbitrarily changed. In other words, associations between objects (pre-existing or otherwise) can be removed.

Referring to claim 23, the system and method of White et al. in view of Kroenke et al. as discussed above with regard to claim 5 discloses the system as claimed. White et al. in view of Kroenke et al. teaches the data management system of claim 1, further comprising:

a. finding specific unknown encapsulated data instances from a selection criteria of known encapsulated data instances by accessing said known encapsulated data

instances representing said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44);

b. accessing references encapsulated with said known encapsulated data instances representing said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44);

c. using Boolean operations to compare said accessed encapsulated references to find references to said specific unknown encapsulated data instances (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44); and

d. retrieving said specific unknown encapsulated data instances (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

Referring to claim 24, the system and method of White et al. in view of Kroenke et al. as discussed above with regard to claim 5 discloses the system as claimed. White et al. in view of Kroenke et al. teaches the data management system of claim 23, wherein:

a. said encapsulated references are embodied as logical indexes in a plurality of dimensions (White et al., "pointers or keys", Column 7 Line 5-11) ;

b. each of said dimensions corresponds to a type of association (White et al., Column 5 Line 3-25 and Column 6 Line 22-43); and

c. said accessing further comprises accessing said encapsulated references from said dimensions specified in said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

Referring to claim 31, the system and method of White et al. in view of Kroenke et al. as discussed above with regard to claim 5 discloses the system as claimed. White et al. in view of Kroenke et al. teaches the data management system of claim 1, wherein said encapsulated data instances have attributes of a user interface (White et al. Column 5 Line 30-32 and Column 10 Line 12-60).

Claim 32 is rejected on the same basis as claim 31.

Claim 33 and 34 are rejected on the same basis as claim 23.

Referring to claim 36, the system and method of White et al. in view of Kroenke et al. as discussed above with regard to claim 5 discloses the system as claimed. White et al. in view of Kroenke et al. teaches the data management system of claim 33, wherein:

a first data instance is encapsulated with references to associated data instances and each of said associated data instances are separately encapsulated with a reference to said first encapsulated data instance (White et al., Column 6 Line 66 through Column 7 Line 11, Column 7 Line 18-38, and Column 6 Line 23-43);

wherein each of said encapsulated references is a logical index which uniquely identifies each of said associated encapsulated data instances and also encodes the location of each of said associated encapsulated data instances (White et al., "pointers or keys", Column 7 Line 5-11); and

wherein said logical index is `m` dimensional, and has `n` bits per dimension (Kroenke et al., "length", Column 14 Line 4-17); said encapsulated references of different said encapsulated data instances are used by comparing such for at least one

of commonality, similarity and difference to derive sets of references corresponding to said desired results (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

Claim 47 is rejected on the same basis as claim 23.

Claim 48 is rejected on the same basis as claim 33.

Claim 50 is rejected on the same basis as claim 23.

Referring to claim 51, the system and method of White et al. in view of Kroenke et al. as discussed above with regard to claim 5 discloses the system as claimed. White et al. in view of Kroenke et al. teaches the data management system of claim 1, wherein wherein: said encapsulated references of at least one of said encapsulated data instances is unique (Kroenke et al., Figure 2, Column 6 Line 26-65, and Column 14 Line 4-17) and said encapsulated references of at least two of said encapsulated data instance are generally identical (Kroenke et al., Figure 2, Column 6 Line 26-65, and Column 14 Line 4-17); and searching said system wherein said encapsulated references of different said encapsulated data instances are used to derive desired results (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

Claim 52 is rejected on the same basis as claim 5.

Claim 54 is rejected on the same basis as claim 23.

Claim 55 and 58, and 60 are rejected on the same basis as claim 33.

Claim 59 is rejected on the same basis as claim 23.

Claim 62 is rejected on the same basis as claim 18.

Claim 88 and 90 are rejected on the same basis claim 5.

Claim 93 is rejected on the same basis as claim 6.

9. Claim 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view of Kroenke et al. and further in view of Walker et al. (U.S. Patent Application Publication Number 2003/0216169).

Referring to claim 27, White et al. in view of Kroenke et al. as applied to claim 23 above does not explicitly disclose that said Boolean operations of claim 23 further comprise: basic mathematical operators which result in the direct exclusion of at least one encapsulated reference from the result of said comparing in a single operation. However, Walker et al. teaches a method and system for providing a bonus to a player based on a credit balance, wherein Boolean operations further comprise basic mathematical operations.

At the time the invention was made, it would have obvious to a person of ordinary skill in the art to add the feature of combining Boolean operations with basic mathematical operations as taught by Walker et al. to the system and method taught by White et al. in view of Kroenke et al. as applied to claim 23 so that, in the resultant method, Boolean operations would further comprise basic mathematical operators which result in the direct exclusion of at least one encapsulated reference from the result of said comparing in a single operation. One would have been motivated to do so simply to reduce execution time.

Claim 28-30 is rejected on the same basis as claim 27.

10. Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view Bielak et al. (U.S. Patent Number 5873049).

Referring to claim 40, White et al. as applied to claim 1 does not explicitly disclose that the system of claim 1 further comprises encapsulated data instances representing ASCII characters, said common fundamental data structures containing said encapsulated data instances representing ASCII characters also contain encapsulated references to encapsulated data instances containing said corresponding ASCII characters, and said common fundamental data structures containing said encapsulated data instances containing said corresponding ASCII characters also contains encapsulated references to said encapsulated data instances representing corresponding ASCII characters. However, Bielak et al. teaches a system and method for persistent databases, wherein ASCII characters are encapsulated in data objects (Bielak et al., Column 12 Line 64 through Column 13 Line 12).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of encapsulating ASCII characters in data objects as taught by Bielak et al. with the system of White et al. as applied to claim 1 so that the combined system further comprise encapsulated data instances representing ASCII characters, wherein common fundamental data structures containing said encapsulated data instances representing ASCII characters also contain encapsulated references to encapsulated data instances containing said corresponding ASCII characters, and said common fundamental data structures containing said encapsulated data instances containing said corresponding ASCII characters also

contains encapsulated references to said encapsulated data instances representing corresponding ASCII characters. One would have been motivated to do so simply because object-oriented model could encapsulate any kind of data, including ASCII characters which are more human-readable than other data types.

11. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view Eversole et al. (U.S. Patent Application Publication Number 2003/0076978).

Referring to claim 42, White et al. as applied to claim 1 does not explicitly disclose that the system of claim 1 further comprises encapsulated data instances representing Unicode characters, common fundamental data structures containing said encapsulated data instances representing Unicode characters also contain encapsulated references to encapsulated data instances containing said corresponding Unicode characters, and said common fundamental data structures containing said encapsulated data instances representing Unicode characters also contains encapsulated references to said data instances representing corresponding Unicode characters. However, Eversole et al. teaches a method for extensible file format, wherein Unicode characters are encapsulated in data objects (Eversole et al., Paragraph 0043).

At the time the invention was made, it would have been obvious to a person ordinary skill in the art to combine the feature of encapsulating Unicode characters in data objects as taught by Eversole et al. with the system of White et al. as applied to claim 1 so that the combined system further comprise encapsulated data instances

representing Unicode characters, common fundamental data structures containing said encapsulated data instances representing Unicode characters also contain encapsulated references to encapsulated data instances containing said corresponding Unicode characters, and said common fundamental data structures containing said encapsulated data instances representing Unicode characters also contains encapsulated references to said data instances representing corresponding Unicode characters. One would have been motivated to do so object-oriented model could encapsulate any kind of data, including Unicode characters which are more human-readable than other data types.

12. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view Shwartz et al. (U.S. Patent Number 5812840).

Referring to claim 44, White et al. as applied to claim 1 does not explicitly disclose that the system of claim 1 further comprises encapsulated data instances comprise encapsulated data instances representing a token set of any data type, common fundamental data structures containing said data instances representing a token set of any data type also contain encapsulated references to encapsulated data instances containing said corresponding token set of any data type, and said common fundamental data structures containing said encapsulated data instances representing token set of any data type also contains encapsulated references to said encapsulated data instances representing corresponding token set of any data type. However,

Shwartz et al. teaches a method and system for database query, wherein a set of encapsulated variables are included in an object data structure ("a blackboard").

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of encapsulating token set of any data type in data objects as taught by Shwartz et al. with the system of White et al. as applied to claim 1 so that the combined system further comprise encapsulated data instances representing a token set of any data type. One would have been motivated to do so simply because object-oriented model could encapsulate any kind of data.

13. Claim 17, 49, and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view of Silberberg et al. (U.S. Patent Number 6957214).

Referring to claim 17, White et al. as applied to claim 1 above does not explicitly teach that, in the said system, at least one of said encapsulated references is a reference to an encapsulated data instance in another computing environment. However, Silberberg et al. discloses an architecture for distributed database information access wherein data instances are located in different computing environments (Silberberg et al., Column 5 Line 48 through Column 6 Line 54).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature for accessing data instances in different computing environments as taught by Silberberg et al. with the system taught by White et al. as applied to claim 1 above so that, in the combined system, at least one of said encapsulated references is a reference to an encapsulated data instance in another

computing environment. One would have been motivated to do so in order to access "information from a plurality of diverse data sources" (Silberberg et al., Column 4 Line 7-9).

Claim 49 and 61 are rejected on the same basis as claim 17.

14. Claims 94-96 are rejected under 35 U.S.C. 103(a) as being unpatentable over White et al. in view of Suver (U.S. Patent Number 6016497).

Referring claim 94, White et al. as applied to claim 85 above does not explicitly teach that, in the data management system of claim 85, each of said items may encapsulate embedded elements. However, Suver teaches a method and system for storing and accessing embedded information in object-relational databases wherein data instances encapsulate embedded elements (Suver, Column 10 Line 9-27).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of embedding elements in object-relational databases as taught by Suver with the system and method of claim 85 as taught by White et al. so that, in the combined system and method, items would encapsulate embedded elements. One would have been motivated to do so in order to "allow for storing and access of embedded complex information in both the relational data modeling and object-oriented data modeling" (Suver, Column 2 Line 44-48).

Referring to claim 95 and 96, White et al. in view of Suver above with regard to claim 94 discloses the system as claimed. White et al. in view of Suver is directed to the data management system of claim 94 wherein said embedded are

references to other items (Suver, Column 10 Line 9-27) and said data instances may contain data of any type (Suver, Column 10 Line 9-27).

Allowable Subject Matter

1. Claims 25-26, 29-30 35, 37, 41,43, 45, 46 and 91 are objected to as being dependent upon a rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims, assuming correction of the claim objections and claim rejections under 35 U.S.C. 112 above.

The following is a statement of reasons for the indication of allowable subject matter. Referring to claims 25, White et al. in view of Kroenke et al. is directed to the system and method of claim 23, comprising:

a. finding specific unknown encapsulated data instances from a selection criteria of known encapsulated data instances by accessing said known encapsulated data instances representing said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44);

b. accessing references encapsulated with said known encapsulated data instances representing said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44);

c. using Boolean operations to compare said accessed encapsulated references to find references to said specific unknown encapsulated data instances (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44); and

d. retrieving said specific unknown encapsulated data instances (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

However, White et al. in view of Kroenke et al. fails to teach what claim 25 of the claimed invention recites that, in the said system and method of claim 23, said encapsulated references are `m` dimensional logical indexes each of which uniquely identifies and encodes the location of said associated encapsulated data instances; and further comprising filtering said encapsulated references by Boolean operations on at least one of said `m` dimensional logical indexes.

Therefore, claim 25 is allowable if written in an independent form.

Referring to claims 26, White et al. in view of Kroenke et al. is directed to the system and method of claim 24, wherein:

a. said encapsulated references are embodied as logical indexes in a plurality of dimensions (White et al., "pointers or keys", Column 7 Line 5-11) ;

b. each of said dimensions corresponds to a type of association (White et al., Column 5 Line 3-25 and Column 6 Line 22-43); and

c. said accessing further comprises accessing said encapsulated references from said dimensions specified in said selection criteria (White et al., Column 23 Line 42-50 and Kroenke et al., Column 12 Line 15-44).

However, White et al. in view of Kroenke et al. fails to teach what claim 26 of the claimed invention recites that, in the said system and method of claim 24, said encapsulated references are `m` dimensional logical indexes each of which uniquely identifies and encodes the location of said associated encapsulated data instances; and

further comprising filtering said encapsulated references by Boolean operations on at least one of said `m` dimensional logical indexes.

Therefore, claim 26 is allowable if written in an independent form.

Referring to claim 35, White et al. in view of Kroenke et al. is directed to the system of claim 34 wherein encapsulated references of different said encapsulated data instances are compared such for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results. However, White et al. in view of Kroenke et al. fails to teach what claim 35 of the claimed invention recites that, in the said system and method of claim 34, said encapsulated references of different said encapsulated data instances are stored in an order based on value and are compared such for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results.

Therefore, claim 35 is allowable if written in an independent form.

Referring to claim 37, White et al. in view of Kroenke et al. is directed to the system of claim 33 wherein encapsulated references of different said encapsulated data instances are used to derive desired results. However, White et al. in view of Kroenke et al. fails to teach what claim 37 of the claimed invention recites that, in the said system and method of claim 33, each of said at least one dimensions has a plurality of said encapsulated references; and said encapsulated references of different of said encapsulated data instances are stored in an order based on value and are compared for at least one of commonality, similarity and difference to derive sets of references corresponding to said desired results.

Therefore, claim 37 is allowable if written in an independent form.

Referring to claim 41, White et al. in view of Bielak et al. as applied to claim 40 teaches that the system comprises encapsulated data instances representing ASCII characters, wherein common fundamental data structures containing said encapsulated data instances representing ASCII characters also contain encapsulated references to encapsulated data instances containing said corresponding ASCII characters, and said common fundamental data structures containing said encapsulated data instances containing said corresponding ASCII characters also contains encapsulated references to said encapsulated data instances representing corresponding ASCII characters.

However, White et al. in view of Bielak et al. as applied to claim 40 does not teach that said encapsulated references with a given ASCII character data instance are references to other encapsulated data instances containing said ASCII characters based on position of said ASCII characters in the sequence of occurrence of said ASCII characters in said encapsulated data instances.

Therefore claim 41 is allowable if written in an independent form.

Referring to claim 43, White et al. in view of Bielak et al. as applied to claim 42 teaches that the system comprises encapsulated data instances representing Unicode characters, wherein common fundamental data structures containing said encapsulated data instances representing Unicode characters also contain encapsulated references to encapsulated data instances containing said corresponding Unicode characters, and said common fundamental data structures containing said encapsulated data instances containing said corresponding Unicode characters also contains encapsulated

references to said encapsulated data instances representing corresponding Unicode characters.

However, White et al. in view of Bielak et al. as applied to claim 42 does not teach that said encapsulated references with a given Unicode character data instance are references to other encapsulated data instances containing said Unicode characters based on position of said Unicode characters in the sequence of occurrence of said Unicode characters in said encapsulated data instances.

Therefore claim 43 is allowable if written in an independent form.

Referring to claim 45, White et al. in view of Bielak et al. as applied to claim 44 teaches that the system comprises encapsulated data instances representing token set of any data type, wherein common fundamental data structures containing said encapsulated data instances representing token set of any data type also contain encapsulated references to encapsulated data instances containing said corresponding token set of any data type, and said common fundamental data structures containing said encapsulated data instances containing said corresponding token set of any data type also contains encapsulated references to said encapsulated data instances representing corresponding token set of any data type.

However, White et al. in view of Bielak et al. as applied to claim 44 does not teach that said encapsulated references with a given token set of any data type data instance are references to other encapsulated data instances containing said token set of any data type based on position of said token set of any data type in the sequence of occurrence of said token set of any data type in said encapsulated data instances.

Therefore claim 45 is allowable if written in an independent form.

Referring to claim 91, White et al. in view of Kroenke et al. as applied to claim 90 fails to teach that, in the system of claim 90, "m" is 4 and "n" is 30. Therefore claim 90 is allowable if written in an independent form.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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